State of Alaska
Department of Fish and Game
Habitat and Restoration Division

Nomination for Waters Important to Anadromous Fish

Region: SOUTHEAST ▼ USGS Quad: **Yakutat C-5**

Anadromous Water Catalog Number of Waterway: **182-80-10100-2005-3022 & 3022-4010, and 183-50-10100-0020**

Name of Waterway: Ophir Creek, East Ophir Creek ☑ USGS Name ☐ Local Name

☑ Addition ☐ Deletion ☐ Correction ☒ Backup Information

For Office Use

Nomination #	99-372		
Revision Year:		Regional Supervisor	11/29/1999 Date
Revision to: Atlas / Catalog / Both	N/A	AWC Project Biologist	12/15/99 Date
Revision Code:	F-1	Drafted	Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
Steelhead Trout	see attached		X		☐
coho	see attached		X		☑
sockeye	see attached		X		☑
cutthroat	see attached		X		☐
dolly	see attached		X		☐

IMPORTANT: Provide all supporting documentation that this water body is important for the spawning, rearing or migration of anadromous fish, including: number of fish and life stages observed; sampling methods, sampling duration and area sampled; copies of field notes; etc. Attach a copy of a map showing location of mouth and observed upper extent of each species, as well as other information such as: specific stream reaches observed as spawning or rearing habitat; locations, types, and heights of any barriers; etc.

Comments: Additional backup info to AWC per attached information collected by USFS during outmigration weir counts in 1998. See attached summary reports "Downstream Migration of Juvenile Salmonids in Ophir Creek, 1998" and "Migration of Juvenile Salmonids Through the Canoe Route Stream located Between Summit Lake and Aka Lake, 1997 and 1998.".

Name of Observer (please print): VINCE HARKE

Signature: _____ Date: _____

Address: USFS

This certifies that in my best professional judgment and belief the above information is evidence that this waterbody should be included in or deleted from the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes per AS 16.05.870.

Signature of Area Biologist: _____

Revision 3/97

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME

APPLICATION
for

PERMIT to take, possess, hold alive, band or tag, import into or export from Alaska, BIRDS OR THEIR EGGS, MAMMALS OR THEIR FUR (except historically domestic mammals, birds, and eggs), and to take, possess, hold alive, or tag, FISH AND THEIR EGGS (except goldfish and decorative tropical fish) FOR SCIENTIFIC, OR EDUCATIONAL PURPOSES.

I, Vince L. Harke (name), of USDA Forest Service (organization and address)
Yakutat Ranger District, P.O. Box 327 Yakutat AK 99689 (907) 784-3359

under contract to _____ (address and name of contractual organization or institution)

hereby make application for a permit to capture and hold live fish. (specify take, possess, etc.)

the following species:

SPECIES - COMMON NAMES	NO.	SPECIES - COMMON NAMES	NO.
Coho Salmon(juveniles)	1000's		
Sockeye Salmon(juvenile)	1000's		
Dolly Varden (juveniles)	100's		
Rainbow trout (juveniles)	100's		
Cutthroat trout (juveniles)	100's		

during the period April 10 to December 31 1999

I wish to obtain the above by means of fyke nets, baited minnow traps (traps, snares, gillnets, etc.)

from freshwater lakes and streams in the Yakutat area. (be specific to location)

(over)

The purpose of the activ s for which a permit is being requested is. _____
(be specific)

To monitor salmonid smolt yield from Ophir Creek (ADF&G # 182-80-10100-2005-3022). See attached report for study plan of smolt trapping activities. Sampling for the presence of salmon and char in Yakutat area lakes and streams.

An outline of your study plan is also requested, please attach.

Final disposition of the specimens collected will be Released live into the areas from which they were captured.

The following persons will participate in the field collections under terms of the permit being requested:

Vince L. Harke

William G. Lucey

Chris Grove

I certify that all statements entered on this application are true, that I will abide by all conditions and restrictions of a permit if issued, and promise to submit a report of activities carried out under terms of such permit within 30 days of its expiration date.

Vin L. Harke
(signature)

01-20-99
(Date)

If applicant is representing a corporation or institution, a certification of affiliation may be required which must be notarized and attached to this application.

Completed application must be submitted to the Alaska Department of Fish and Game, P.O. Box 3-2000, Juneau, AK 99802

ATTN:

Division of Game - For permits requesting birds or mammals.
Division of Commercial Fish - For permits for marine water collections.
Division of Sport Fish - For permits for all freshwater collections and near shore areas.
Division of FRED - For permits involving aquaculture activities.

SUMMARY REPORT

Downstream Migration of Juvenile Salmonids in Ophir Creek, 1998

Vince L. Harke and William G. Lucey
USDA Forest Service, Tongass National Forest, Yakutat Ranger District

During the last three decades, the amount of usable fish habitat in the Ophir Creek watershed has decreased significantly. Management activities such as timber harvest, road construction and borrow-pit development along with natural processes have resulted in reduced stream flows in Ophir Creek. Ophir Creek has now become the focus of a multi-agency watershed restoration effort. Smolt yield from Ophir Creek was monitored to determine the present salmonid production in Ophir Creek prior to, and during, watershed restoration.

Methods

A V-shaped weir was constructed across Ophir Creek approximately 50 meters upstream from its confluence with the East Ophir Creek tributary (Figure 1). Two fyke nets, each 1 meter square by three meters long were fished from the apex of the weir from April 10 through June 16, 1998. The weir was constructed of 6mm square mesh vexar screen supported by lumber and steel pipe pounded into the streambed. Each fyke net was connected to an anchored live box by a 10 cm diameter pipe. A second weir was constructed on the East Ophir Creek tributary approximately 50 meters upstream from the confluence with Ophir Creek. A single fyke net/live box of the same dimensions was fished at this site. Fyke nets were fished 24 hours a day except from April 16 to 22 and May 11 and 12, when floodwaters breached the weir.

Parr, smolt, and fry of all species were counted every day. A sample of up to 100 parr and smolt were measured for forklength daily. Fry were enumerated daily by weight estimation or direct counts. Body size and external characteristics were used to identify species and separate fry, parr, and smolt. Minimum forklength criteria was used to separate fry, parr, and smolt at Ophir Creek. For coho, fry were 30mm-45mm, parr:45mm-70mm and smolt, 70+ mm forklength.

To test trap efficiency, a sample of coho smolt were marked with a caudal fin clip and released 50-100 meters upstream from the Ophir creek weir. An effeciency test was not performed on the East Fork weir due to the extremely low numbers of smolt. Trap efficiency was determined by the percent of marked fish recaptured at the weirs. Water temperature and water levels were recorded daily. Total rearing area was determined from a comprehensive stream survey of Ophir Creek and East Ophir Creek completed in 1995.

Summary of Results

Over 663,115 juvenile salmonids were counted at weirs on Ophir Creek and East Ophir Creek from April 8, through June 20, 1997. 98% of the fish counted were sockeye and coho fry. The smolt count for both weir sites combined was 1,515 sockeye smolt, coho smolt, 10,218 coho parr, 77 Dolly Varden, and 17 steelhead smolt. These results indicate a yield of 19.4 fish/100 m^2 of stream. East Ophir Creek produced 16% of the total parr and smolt counted, and 23% of the fry counted. The yield of smolt and parr from East Ophir Creek was 8.3 fish/100 m^2 of stream. Rainfall was abundant during the study period with a total of 24.09 inches falling during the 67 day trapping effort. Very little stream channel went dry during the summer

months due to the continuing rainfall. High-flow conditions during the study period resulted in unhooking the fyke nets and letting fish pass uncounted for a total of nine days. Due to this inconsistency in the data, the total catch numbers are likely underestimated. This error may be magnified as high flows during the last three years have coincided with strong outmigration of juveniles. This was the fourth year that smolt migration from Ophir Creek has been monitored. Table 1 summarizes the yearly results. Table 2 compares trapping results for all years.

Table 1. Species and number of fish counted at the Ophir Creek and East ophir Creek weirs, April 10 - June 16,1998.

Species	Ophir Creek	East Ophir Creek	Total Count
Coho Fry	450,053	69,959	520,021
Coho Parr	8,598	1,620	10,218
Coho Smolt	3,266	326	3,592
Sockeye Fry	76,646	51,132	127,778
Sockeye Smolt	1,364	151	1,515
Dolly Varden	72	5	77
Steelhead Smolt	16	1	17
Total Count =	540,015 (81%)	123,194 (19%)	663,209
Fry Mortalities	5,389 (0.997%)	418 (0.339%)	4,971

Table 2. Yearly comparison of salmonid production from Ophir Creek and East Ophir Creek, 1995 to 1998.

Year	Sockeye Fry	Sockeye Smolt	Coho Fry	Coho Parr	Coho Smolt	Dolly Varden	Sthd. Smolt
Ophir Creek:							
1995	503,110	2,680	273,121	8,417	2,004	279	4
1996	118,494	3,666	69,747	10,368	1,818	52	10
1997	61,078	1,345	442,780	7,525	1,206	44	10
1998	76,646	1,364	450,053	8,598	3,266	72	16
East Ophir							
1995	80,726	1,299	128,395	7,862	1,928	52	0
1996	19,278	811	713	5,480	1,227	19	1
1997	14,500	1,024	35,249	3,183	874	4	0
1998	51,132	151	69,959	1,620	326	5	1
Total Count							
1995	583,836	3,979	401,516	16,279	3,932	331	4
1996	137,772	4,477	70,460	15,848	3,045	71	11
1997	75,578	2,369	478,029	10,708	2,080	48	10

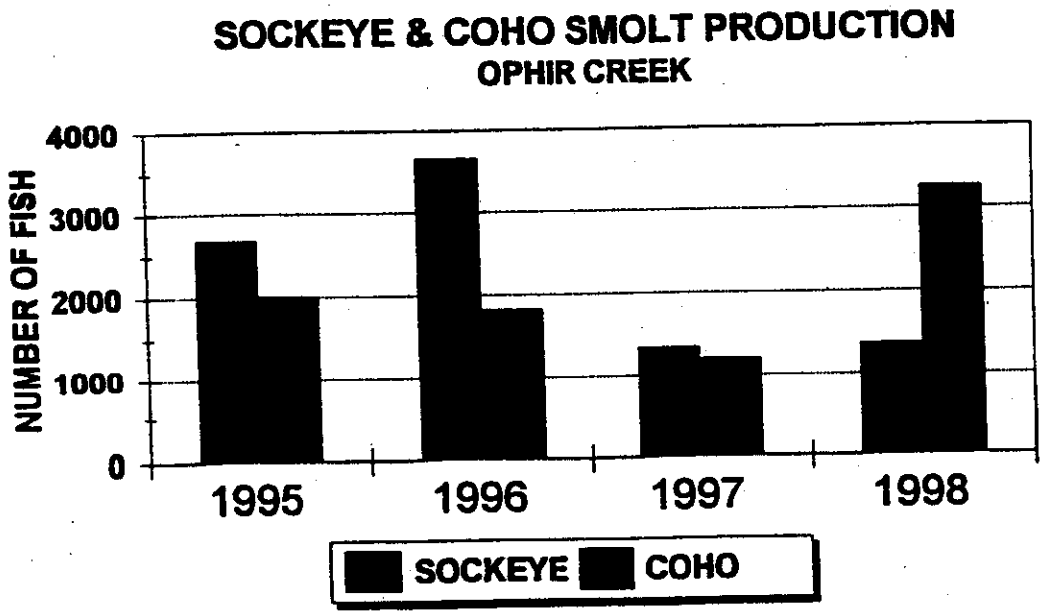
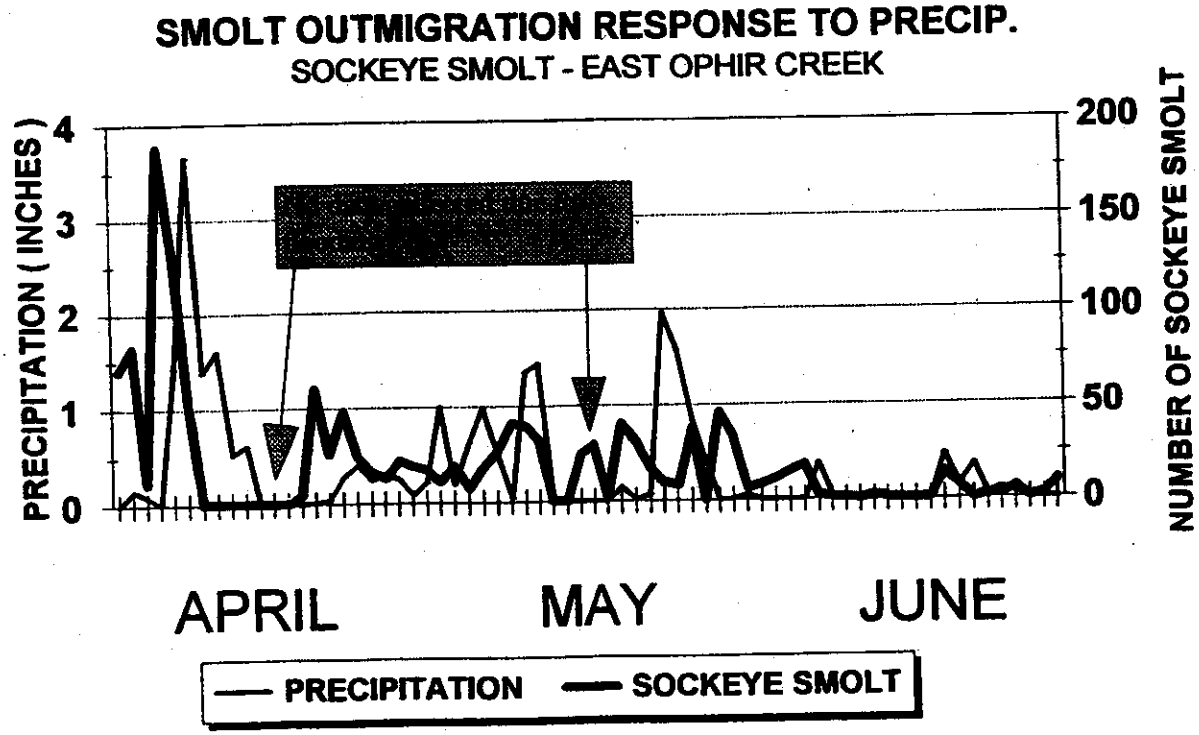


Figure 1. Numbers of smolt counted at the trapping site between April and June (1995-1997)

Table 3. Comparison of total yield for coho smolt, coho parr, sockeye smolt, Dolly Varden, and steelhead (No. of fish per 100 square meters of stream) for Ophir Creek and East Ophir Creek, 1995 and 1996. The estimated rearing area for Ophir Creek is 68,515 m^2. The estimated area for East Ophir Creek is 25,320 m^2. The combined area for both streams is 93,835 m^2 .

Year	Ophir Creek	Yield (fish/100m^2)	East Ophir	Yield (fish/Cm^2)	Both Streams	Yield (fish/Cm^2)
1995	13,384	19.5	11,141	44	24,525	26.1
1996	15,904	23.2	7,537	29.8	23,441	25
1997	10,130	14.8	5,085	20	15,215	16.2
1998*	13,316	19.4	2,102	8.3	15,418	16.4

* 1998 data incomplete as a result of flooding



*Outmigration of smolt is associated with high water. Large numbers of smolt likely passed undetected during the flood periods skewing catch numbers downward.

Figure 2. Relationship between outmigration of sockeye smolt to precipitation levels.

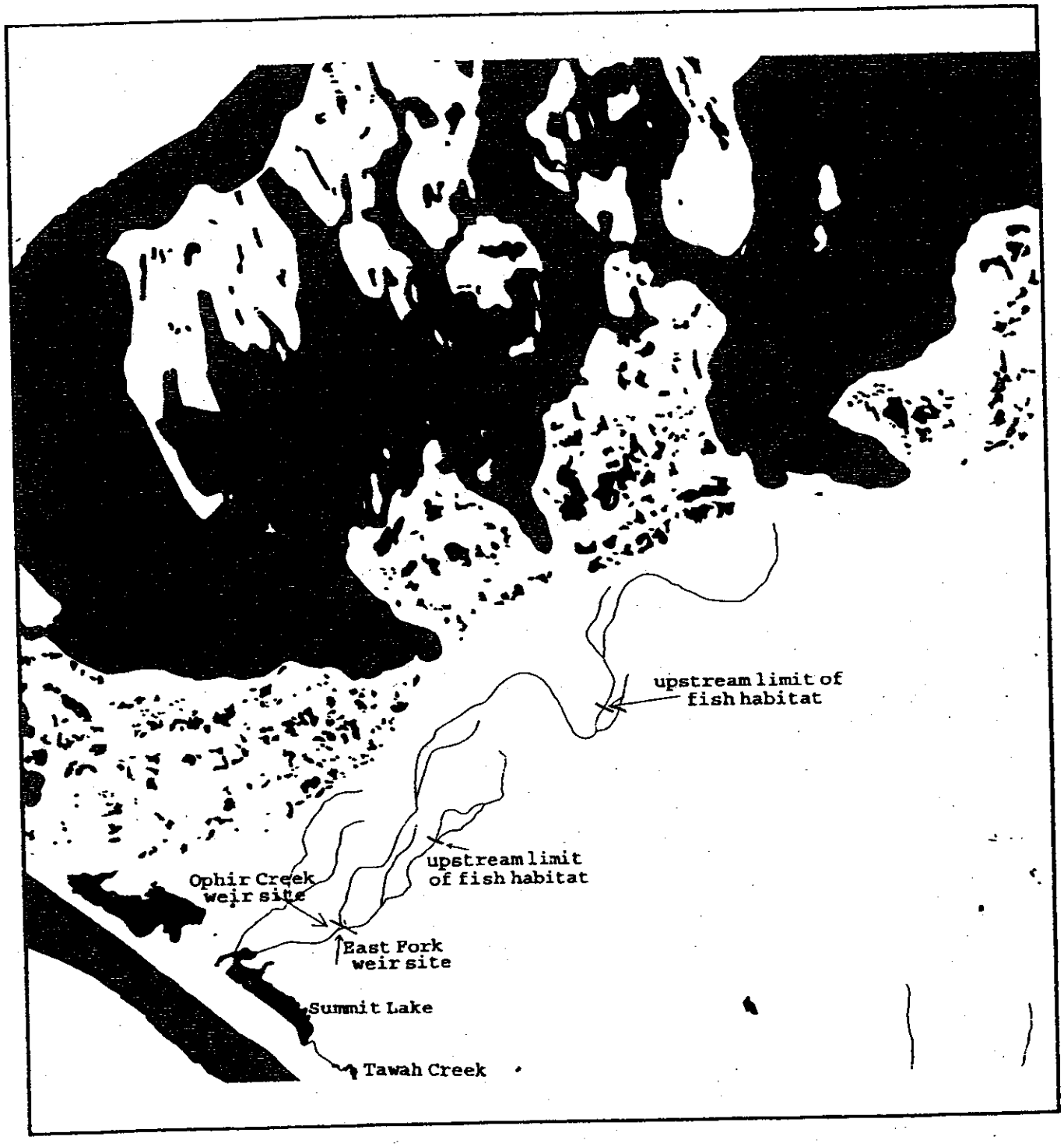


Figure 1. Ophir Creek watershed and study area. Location of fish weirs on Ophir Creek and East Ophir Creek.

Migration of Juvenile Salmonids Through the Canoe Route Stream Located Between Summit Lake and Aka Lake, 1997 and 1998.

Bill Lucey and Vince Harke

USDA Forest Service, Tongass National Forest, Yakutat Ranger District

The USDA Forest Service conducted a smolt trapping project in the stream channel (Canoe Route) between Summit Lake and Aka Lake during the springs of 1997 and 1998. The site was located near the town of Yakutat, Alaska. The purpose of this project was to investigate the level of fish passage provided by the channel. This information is a precursor to a proposed enhancement project to improve fish passage during low flow periods. Combined trapping results for both years indicate that the channel is an important migration corridor for fish when there is enough water to allow passage; 73,515 coho and sockeye fry and 6,551 smolt and parr in 1998. In 1997 the channel began to dewater immediately following trap installation and only four fry were captured.

INTRODUCTION

During the last three years the stream channel (Canoe Route) between Aka and Summit lakes has frequently dewatered prohibiting the passage of both adult and juvenile salmon. Reasons for this dewatering probably include isostatic rebound, natural lake succession, possibly accentuated by reduced water flows due to logging and road building, and culvert placement by the U.S. Coast Guard.

The fish trapping project was an extension of the multi-agency restoration effort taking place on Ophir Creek. Habitat surveys indicate that fish spawning habitat associated with Aka lake is limited. Historical accounts and recent observation indicate adult salmon which return to Aka Lake pass through the canoe route to spawn in the Ophir Creek watershed. Improving fish passage along the canoe route may increase the number of juvenile salmonids entering Aka Lake and the Ankau system from Ophir Creek. This could expand the rearing potential for the entire watershed.

The initial Forest Service activity on the canoe route was to perform a cultural survey with the regional archeologist. Though the area around the Ankau system is full of old cultural sites, the actual channel does not disturb any of these areas. A biological evaluation was also conducted to assess the plant community. The following fish enhancement work began with the replacement of a WWII era culvert in 1994. In conjunction with the culvert replacement a refuge pool measuring 8 X 8 meters was excavated downstream of the culvert. Next a stream habitat survey was conducted coupled with photo documentation. This effort was completed in 1996 prior to a brush clearing effort by the Yakutat Salmon Enhancement Board. Results of the brushing were evident in 1997 with an increased scouring and deepening of the channel bottom which consists almost entirely of old beach sand.

In 1997, the fish weir was placed in the stream to determine if the canoe route was a migration corridor for outmigrating smolts.

METHODS

Two V-shaped weirs were constructed across the stream channel approximately 25 meters down stream from the Coast Guard Rd. culvert. The weir was constructed of 6mm square mesh Vexar screen supported by lumber and iron pipe pounded into the stream. Two fyke nets, each 1 meter square by 3 meters long were fished from the apex of the weir and diverted the fish into holding boxes anchored to the stream bottom with 10 cm iron pipe. One weir faced upstream and one downstream to determine if the channel was utilized as a two way passage. In 1998 it was determined that the fish were migrating only downstream and the second weir was removed. Fyke nets were fished 24 hours a day except when flood waters breached the weir from April 16 till April 23, 1998. Overall the weir was fished from April 29 till June 17 in 1997 for a total of 50 days and from April 12 till June 3 in 1998 for a total of 53 days.

RESULTS

In 1997 the stream dried up in late April, and remained dry for the rest of the spring. A second trapping effort was undertaken in 1998. The results indicate that when the channel remains wetted and flowing, a significant number of fish migrate. In 1998 the traps were installed two weeks earlier than the previous year, but the majority of fish ran from April 26 till June 3. This illustrates the lost potential of the previous year when the channel went dry during peak outmigration time. In 1998, three coho smolts with caudal fin clips were recaptured from the smolt traps operating upstream in Ophir Creek. These smolt were clipped to perform a trap efficiency test at the Ophir site. Lack of sample size prohibits any conclusion as to the percentage of Ophir Creek smolts heading to sea through the canoe route, but it establishes the fact that this occurs. The following table summarizes the total numbers of fish captured at the smolt traps.

Table 1: Outmigration of Salmon Smolt and Fry Through the Canoe Route Stream.

Year	SF	SS	CF	CP	CS	DV	SCPN	STBK	CT	MRT
1997*	2	0	2	0	0	0	0	0	0	0
1998**	5,673	153	67,842	5,033	1,358	7	66	13,688	1	244

* **Channel went dry on April 29, 1997**

** **Channel went dry on June 3, 1998**

SF = Sockeye Fry
SS = Sockeye Smolt
CF = Coho Fry
CP = Coho Parr
CS = Coho Smolt
DV = Dolly Varden
SCPN = Slimy Sculpin
STBK = Stickleback
CT = Cutthroat Trout
MRT = Mortality

CONCLUSION

It is evident that when there is a flowing channel between Summit and Aka Lakes fish readily utilize it as an outmigration corridor. It is beyond the scope of the restoration effort to conduct a full scale study of fish passage in the channel. For the purposes of the proposed stream excavation, enough

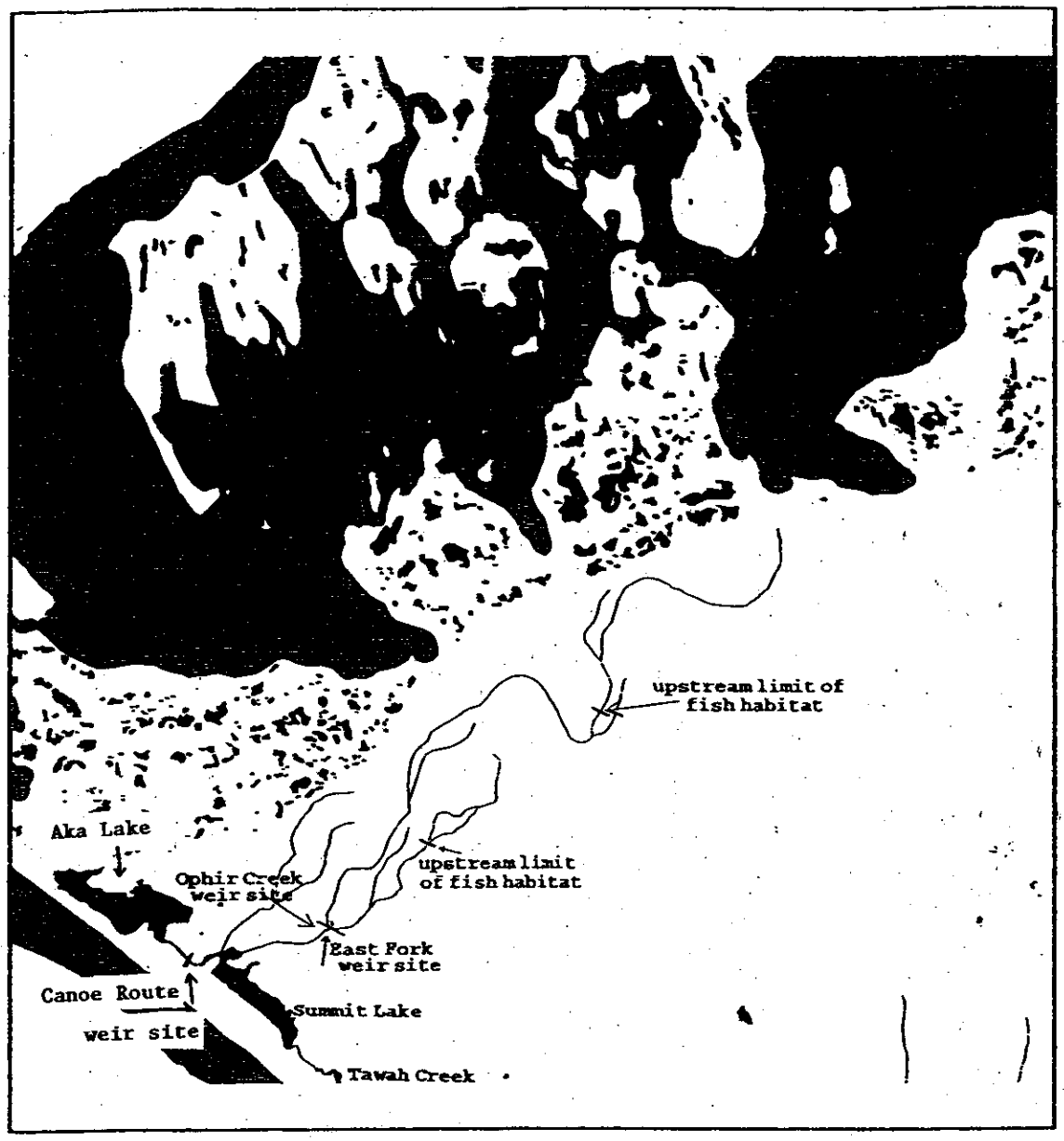


Figure 1. Ophir Creek watershed and study area. Location of fish weirs on Ophir Creek and East Ophir Creek.

United States Department of Agriculture | Forest Service | Alaska Region, Tongass National Forest, Chatham Area, Fax (907) 784-3215 | Yakutat Ranger District, P.O. Box 327, Yakutat, AK 99689-0327, Phone (907) 784-3359

File Code: 2600

Date: 15 JAN 99

ATTN: Ed Weiss

Divison of Sport Fish
Alaska Dept. of Fish & Game
P.O. Box 25526
Juneau, AK 99802 - 5526

Fax: (907) 465 - 2772

Dear Ms. Seifert:

As defined by the conditions of the ADF&G Scientific Permit No. SF-97-031, I have enclosed a summary report listing the dates, locations and numbers of fish captured by Forest Service personnel during 1998 on the Yakutat Ranger District.

In summary I supervised the operation of two fyke-net smolt traps last year. Both traps were installed on Ophir Creek (ADF&G #182-80-10100-2005-0010-3022). One trap was placed on main Ophir Creek, and the second trap was placed on East Ophir Creek, a major tributary stream of Ophir Creek. The traps were used to collect baseline information for part of a monitoring effort for a watershed restoration project. These traps were maintained for 67 days from April 10 through June 16, 1998. All fish captured were released back into Ophir Creek. The results from this smolt monitoring study are documented in the enclosed summary report entitled Downstream Migration of Juvenile Salmonids in Ophir Creek, 1998. In addition, a two way fyke net smolt trapping project was conducted in the canoe route between Summit and Aka Lakes (ADF&G #183-50-10100-0020). The traps were used to quantify juvenile salmonid use in the channel as a justification for possible habitat enhancement work in conjunction with the Ophir Creek watershed rehabilatation. These traps were maintained for 53 days from April 12 through June 3, 1998. All fish captured were released back into the canoe route. Results are enclosed in the report entitled Juvenile Salmon Migration through the Aka to Summit Lake Canoe Route.

I have also enclosed an application for a scientific collecting permit for 1999. I would like to continue with the smolt trapping project on Ophir Creek. As you are probably aware, both ADF&G and the City of Yakutat Salmon Enhancement Board have been working on stream restoration projects in Ophir Creek. These projects have dramatically altered the habitat conditions in the creek. Monitoring outmigration of juvenile salmonids from Ophir Creek provides a valuable tool for measuring the success of the restoration efforts.

I have also submitted an application to the Habitat Division for a Title 16 permit for this project.

We would like to continue the fish habitat investigation work in the Yakutat area. If you have any questions about our 1997 activities, or about the permit for 1999, please call me at the Yakutat Ranger District Office (907) 784 - 3359.

Sincerely,

Vince Harke
Biological Technician

Enclosures:

Collection Permit Application

Downstream Migration of Juvenile Salmonids in Ophir Creek, 1998

Migration of Juvenile Salmonids Through the Canoe Route Stream Located between Summit Lake and Aka Lake, 1997 & 1998

Copies sent to:

Ed Weiss, ADF&G, Anchorage
Phil Mooney, ADF&G, Sitka

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME

P.O. Box 25526
JUNEAU, ALASKA 99802-5526

Permit No. SF-98-007

Expires 12/31/98

FISH RESOURCE PERMIT
(SCIENTIFIC COLLECTIONS)

This permit authorizes Vince L. Harke, USDA Forest Service
(person, agency or organization)
of P.O. Box 327, Yakutat, Alaska 99869 (address) to conduct the following activities from April 10, 1998 to December 31, 1998 in accordance with AS 16.05.930.

Purpose: To sample for the presence of salmon and char in Yakutat area lakes and streams; to monitor salmonid smolt yield from Ophir Creek (ADFG #182-80-10100-2005-3022).

Location: Streams, lakes, and ponds in the Yakutat area.

Species Collected: The following species may be captured:

Coho Salmon	juveniles	(*Oncorhynchus kisutch*)	no limit
Sockeye Salmon	juveniles	(*Oncorhynchus nerka*)	no limit
Dolly Varden	juveniles	(*Salvelinus malma*)	no limit
Cutthroat Trout	juveniles	(*Oncorhynchus clarki*)	no limit
Rainbow Trout	juveniles	(*Oncorhynchus mykiss*)	no limit

Method of Capture: Fish may be captured with baited minnow traps and fyke nets. (See contingencies.)

Final Disposition: All fish captured must be returned alive at the site of capture.

REPORT DUE January 31, 1999. The report shall include species; numbers; dates and locations of collection and disposition; sex, age and breeding condition; lengths and weights of fish; other information as required.

GENERAL CONDITIONS, EXCEPTIONS AND RESTRICTIONS

1. This permit must be carried by person(s) specified during approved activities who shall show it on request to persons authorized to enforce Alaska's fish and game laws. This permit is nontransferable and will be revoked or renewal denied by the Commissioner of Fish and Game if the permittee violates any of its conditions, exceptions or restrictions. No redelegation of authority may be allowed under this permit unless specifically noted.

2. No specimens taken under authority hereof may be sold or bartered. All specimens must be deposited in a public museum or a public scientific or educational institution unless otherwise stated herein. Subpermittees shall not retain possession of live animals or other specimens.

3. The permittee shall keep records of all activities conducted under authority of this permit, available for inspection at all reasonable hours upon request of any authorized state enforcement officer.

4. Permits will not be renewed until detailed reports, as specified above, have been received by the department.

5. UNLESS SPECIFICALLY STATED HEREIN, THIS PERMIT DOES NOT AUTHORIZE the exportation of specimens or the taking of specimens in areas otherwise closed to hunting and fishing; without appropriate licenses required by state regulations; during closed seasons; or in any manner, by any means, at any time not permitted by those regulations.

Division of Sport Fish

Commissioner

1.20.98
Date

Continued on Reverse

Authorized Personnel: The following personnel may participate in collection activities under the terms of this permit:

Vince L. Harke
William G. Lucey

Contingencies:

1. Bob Johnson, Sport Fish biologist and Alan Burkholder, Commercial Fish biologist in Yakutat must be notified prior to collecting activities (784-3222).
2. Bait used in minnow traps must be disinfected prior to use. A 10 minute soak in a 1/100 Betadyne solution is adequate.
3. Tagging of fish MUST be coordinated with Karen Crandell, Tag Coordinator in Juneau. No adipose fin clips can be used unless fish are coded-wire tagged.
4. All unattended collection gear must be labeled with permittee's name and permit number
5. No fish may be possessed live or transported without a valid Fish Transport Permit (FTP) obtained from the Alaska Department of Fish and Game.
6. A report of collecting activities must be submitted to Division of Sport Fish, Juneau Headquarters office, attention resource permit biologist, after the expiration of this permit. This report must summarize the fish captured and incidental mortalities.

Cc: Robert Bentz, Sport Fish, Douglas
Bob Johnson, Sport Fish, Yakutat
Alan Burkholder, CFMD, Yakutat
Lana Flanders, Sport Fish, Douglas
FW Protection, Juneau